**From:** Grant Davids [mailto:Grant@de-water.com]
**Sent:** Monday, January 17, 2011 10:58 AM
**To:** Alemi, Manucher; Davidoff, Baryohay
**Cc:** Stephen.Hatchett@CH2M.com; gyoung@tullyandyoung.com; Divine, Anisa; Ceppos, David M
**Subject:** Draft Language for Measurement Option 3

Dear Manucher and Baryohay,

At the January 5 ASC meeting I was invited to draft additional qualifying language for measurement Option 3. A draft of that language is attached for your consideration.

I look forward to seeing all of you tomorrow.

Grant

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Option 3: Standard Based on Accuracy Measured at Lateral

*Draft language for qualifying the conditions under which Option 3 would be an acceptable form of farm delivery measurement.*

**Discussion**

There are likely to be certain physical circumstances where measurement at farm delivery gates is technically infeasible or so impractical that measurement at the lateral heading combined with a process for apportioning the lateral flow to individual farms becomes a better option for providing a sufficiently accurate estimate of the farm delivery volume for purposes of aggregate farm delivery reporting and volumetric charging. Obviously where conditions prohibit the practical deployment of any of the technically proven, customary measurement devices, lateral measurement with apportionment becomes a viable choice and perhaps the only reasonable option for these purposes.

Conditions encountered at some farm delivery gates that can influence the applicability and performance of measurement devices are summarized in Table 1.

Table 1. Farm/Field Delivery Gate Conditions Posing Challenges to Water Delivery Measurement

| Condition | Implication |
|---|---|
| Extremely low available head through the farm delivery gate | Insufficient head to operate weirs and flumes; propeller meters restrict turnout capacity. |
| High sediment/silt loads in water | Sediment deposition in farm delivery culverts and changes flow cross sections/areas over time; acoustic velocity meters unsuitable (as well as cost prohibitive) because they require a constant cross section. |
| Extremely wide range of flow rates to be measured | Propeller flow meters and potentially weirs and flumes cannot operate accurately over the full range of flow velocities. |
| Heavy moss and algae loads in water | Clogs propeller flow meters causing inaccurate measurement and burdensome maintenance. |

**Proposed Additional Language for Regulation**

[Note: first bullet below to be inserted into Jan 5, 2011 draft Option 3 language]

"….A water supplier using this option shall provide the following information in its Agricultural Water Management Plan:"

- A technical evaluation of the relative merits associated with farm gate and lateral-based measurement, including an assessment of the probable error associated with each measurement approach, supporting the determination that lateral-based measurement with apportionment is likely to provide more accurate accounting of farm deliveries than farm gate

measurement. [Note: this is the new provision.]

- A description of the methodology the supplier will employ to apportion the quantities measured at the lateral into volumes delivered to individual customers for purposes of reporting aggregated farm delivery and adoption of a water pricing structure based at least in part on volume delivered. [Note: This provision is already in the draft.]